

DRAFT

Freeway and Arterial System of Transportation (FAST), Clark County, Las Vegas, Nevada – A Regional TMC Operated Through a Separate Public Sector Operating Entity

14.1 Introduction

The Freeway and Arterial System of Transportation (FAST) combines the existing metropolitan area signal system (Las Vegas Area Computer Traffic System, LVACTS), and the region's freeway management system (FMS), currently under construction, under a single roof. The Las Vegas area's success in combining the operations of the arterial management system (AMS) and freeway management system under a single organization provides an example of the planning process for a truly multi-jurisdictional, multi-disciplinary Traffic Management Center.

14.1.1 General System Description

FAST will serve as the regional intelligent transportation system, serving the multiple jurisdictions of the Las Vegas Valley. The FAST TMC, upon completion, will serve as the central operations point for the freeway management, arterial management, and traveler information systems, as well as serve as a key incident management hub. The TMC will also provide interfaces of these systems to various other components and stakeholders including transit, airport, emergency management, and media services.

The FAST TMC, scheduled for completion in 2005, will be collocated in a facility with the Southern Command of the Nevada Highway Patrol. The FAST TMC will occupy approximately 16,200 square feet of the 66,500 square foot building.

14.1.2 General Objectives of System

A regional system combining arterial and freeway traffic operations was presented early in the FAST TMC planning process. Area stakeholders, who already had been cooperating for over 20 years through the Las Vegas Area Computer Traffic System (LVACTS), viewed freeway management as a natural extension to the existing arterial and traffic signal management system. Stakeholders recognized the operational advantage of managing the freeway and arterial systems from a single TMC, and the reduced maintenance costs that could be realized through shared administrative, technical, and professional staff resources.

Early in the process, a primary objective of the TMC was to provide a facility adequate in size and functionality to house the arterial and freeway management central systems and support staff. As additional stakeholders were engaged, notably the Nevada Highway Patrol, the system objectives expanded

commensurately. The TMC became multi-disciplinary and multi-jurisdictional with the primary objective of the FAST TMC to be to facilitate coordination between NHP dispatch and NDOT in the response and management of freeway incidents.

14.2 Design and Implementation

Planning for the FAST TMC began in the early phases of the freeway management system design. While NDOT did not complete a stand-alone TMC Business Plan, critical facility and financial planning steps were developed as part of a High Level System Design (HLSD) and during the FMS design phases.

The HLSD contains two tasks specific to the TMC. The first task included a summary of FMS functions and features. Detailed interviews with transportation system managers and stakeholder “scanning tours” were conducted.

The second task resulted in the preparation the *FAST Center Requirements* document. The document includes a discussion of TMC objectives, space planning, location requirements, and cost. Based upon the recommendations of the *FAST Center Requirements* document, building construction, operations and maintenance budgets were included in the NDOT annual and long-range work program.

Geographic Area Covered

The FAST TMC serves the entire Las Vegas Valley, including the following jurisdictions:

- Nevada Department of Transportation (freeways);
- City of Henderson;
- City of Las Vegas;
- City of North Las Vegas; and
- Clark County.

Participating Agencies and Stakeholders

The FAST TMC will be collocated in a joint facility with the Nevada Highway Patrol, Southern Command. Three separate organizations will be collocated within NHP/FAST facility:

- NHP Headquarters and dispatch personnel;
- FAST (arterial and freeway management systems) personnel; and
- Las Vegas area Freeway Service Patrol (FSP).

The privately contracted Freeway Service Patrol will have office space and store their service vehicles on site at the FAST TMC. The primary supporting agencies include:

- Nevada Department of Transportation;
- LVACTS, (the region’s existing arterial management system);
- City of Henderson;
- City of Las Vegas;
- City of North Las Vegas;
- Clark County;

- Regional Transportation Commission of Southern Nevada; and
- Nevada Highway Patrol.

TMC Functions

The FAST TMC will be responsible for:

- Arterial traffic signal system;
- Freeway management system;
- Advanced traveler information system;
- Archived data system; and
- Incident Management.

In addition to the FMS and AMS operations, the TMC will house the FAST maintenance personnel, ITS field equipment repair shops, and storage facilities for spare parts. NHP dispatch will be colocated within the TMC, and are able to view CCTV camera images to aid in the dispatch of appropriate response personnel to the incident scene. As necessary, FAST operators collaborate with NHP on-scene responders to devise appropriate traffic control and diversion strategies –including modifications to ramp metering rates, traffic signal timing modifications, and posting messages to dynamic message signs.

Number and type of field elements

The arterial management system (AMS) operates approximately:

- 750 traffic signals (to expand to 1200 signals);
- More than 80 CCTV cameras; and
- 11 dynamic message signs.

The 17-mile pilot corridor for the freeway management system is currently under construction, with completion anticipated in the Fall of 2005. Stage 1 of the initial FMS will contain:

- 12 CCTV cameras;
- 3 dynamic message signs;
- 8 loop detectors stations;
- 30 non-intrusive detection stations; and
- 4 ramp meters.

Stage 2 will include 12 new CCTV cameras, integration of 2 existing cameras, 9 dynamic message signs, 6 additional mainline loop detector stations, 22 video image detectors, and 74 radar detection locations. Full build-out will contain nearly 135 centerline miles of freeway management system.

14.3 Organization and Management Structure

FAST represents a very unique partnership and organizational structure for regional transportation management and operations. Building on the successful, multi-jurisdictional LVACTS formal arrangement, it is a separate, multi-jurisdictional organization, receiving administrative support from the Regional Transportation Commission of Southern Nevada (RTC).

An Operating Management Committee (OMC) consisting of one representative from each of the participating agencies oversees FAST. Each agency has a single vote on the OMC, except the Regional Transportation Commission of Southern Nevada, which is a non-voting member. Valley jurisdictions are members of the OMC, and these partners include:

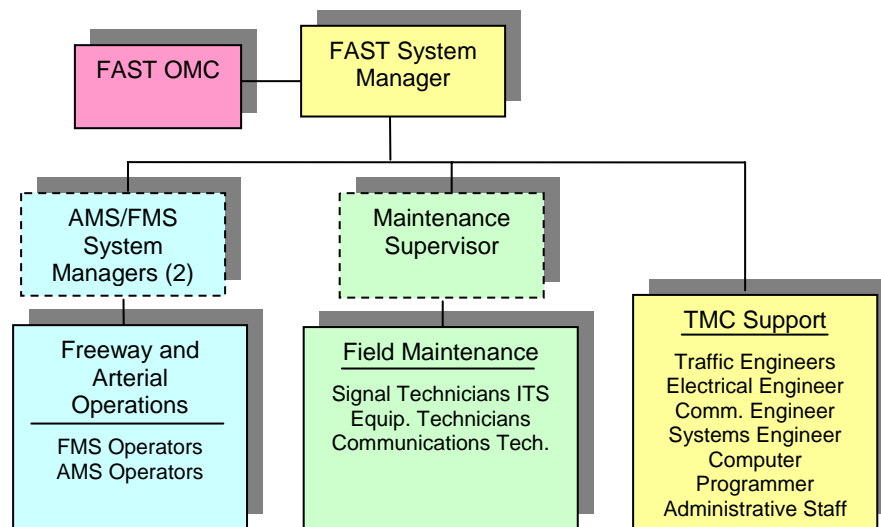
- Regional Transportation Commission;
- Nevada Department of Transportation;
- City of Henderson;
- City of Las Vegas;
- City of North Las Vegas; and
- Clark County.

A FAST System Manager reports to the Operating Management Committee and will be responsible for approving any new traffic management infrastructure that is to be operated by the FAST system, selecting the traffic management strategies, and supervising the FAST staff.

FAST staffs are employees of the Regional Transportation Commission, which serves as the FAST Administrator. The FAST Administrator is the financial agent for the system responsible for collecting and disbursing funds for operation and management of the system.

The FAST organizational structure places arterial operations, freeway operations, and maintenance under separate managers. Other professionals, such as traffic and electrical engineering support, are under the supervision of the System Manager. This structure requires the operational managers to make maintenance and other requests to the Maintenance Supervisor, and ultimately to the System Manager. By separating maintenance activities from the supervisory authority of the arterial and freeway operations managers, competing interests between freeway and arterial system managers are minimized. Maintenance and other supporting professional activities, including traffic engineering, are prioritized ultimately by the System Manager, who is ultimately responsible for arterials and freeways. As many ITS field devices are used both on surface streets and freeways, shared maintenance permits a better trained and equipped staff. The structure encourages the System Manager to establish priorities regardless of roadway system.

The real advantages of the FAST organizational structure are achieved primarily through combining the two-traffic management systems institutionally into one organization



14.4 Implications for Business Plan

- An existing organization, the Las Vegas Area Computer Traffic System served as the foundation for the multi-jurisdictional, multi-disciplinary FAST TMC. The LVACTS, which began operations in the early 1980's, is the traffic signal system for the Las Vegas valley and has become a model for regional cooperation. Members of LVACTS include City of Las Vegas, Clark County, City of North Las Vegas, City of Henderson, Nevada DOT, and the Regional Transportation Commission. Partner agencies were part of a formal agreement that outlined organizational structure, oversight, and operational responsibilities. This LVACTS Agreement provided the basis for the FAST Agreement, which has been modified to include additional partners, roles, operational functions, and expanded the terms and funding formula of the Agreement to meet the freeway management and operations components.
- A primary purpose of the FAST TMC is to share the operations and maintenance of traffic management facilities in the Las Vegas area among those agencies involved. FAST will provide maintenance of traffic management infrastructure including the TMC and communications hardware. Maintenance of field devices can be handled by FAST or by individual agencies if they so desire. It is envisioned that traffic signals will be maintained by each individual agency while CCTV cameras, dynamic message signs, video detection and trailblazer signs will be maintained by FAST.
- An Operating Management Committee consisting of one representative from each of the participating agencies oversees FAST. Each agency has a single vote on the Operating Management Committee, except the Regional Transportation Commission of Clark County, which is a non-voting member. The FAST system manager reports to the Operating Management Committee and will be responsible for approving any new traffic management infrastructure that is to be operated by the FAST system, selecting the traffic management strategies, and supervising the FAST staff. FAST staff are employees of the Regional Transportation Commission, which serves as the FAST Administrator. The FAST Administrator is the financial agent for the

system responsible for collecting and disbursing funds for operation and management of the system.

- Operating budgets are developed annually by the FAST System Manager, and are presented to the OMC. The freeway management system budget is also presented to NDOT, and the arterial budget to the Regional Transportation Commission (RTC). If the arterial budget exceeds the RTC programmed allocation, local jurisdictions are requested to meet the shortfall based on a "fair-share" formula which is largely based on the number of traffic management infrastructure field devices located within each participating agency's jurisdiction that are operated and maintained by FAST. This FAST funding structure is based on the successful LVACTS fair-share formula that has been sustaining the arterial management system for more than a decade. This funding structure and formula are outlined in the FAST Agreement, which is signed by all partner agencies.